

**NAVAL STATION NEWPORT  
RESTORATION ADVISORY BOARD MEETING  
November 20, 2002**

**MINUTES**

On Wednesday, November 20, 2002, the NAVSTA Newport Restoration Advisory Board (RAB) gathered at the Officers' Club for its monthly meeting. The meeting began at 7:05 p.m. and ended at 8:45 p.m.

In attendance were John Vitkevich, Kathy Abbass, Thomas McGrath, Edward Moitoza, Susan Hester, Howard Porter, Mary Blake, Emmet Turley, James Myers, Manuel Marques, Thurston Gray, Thomas Reardon, Elizabeth Dees, Nathayn Jolin, Claudette Weissinger, David D. Dorocz (NAVSTA), Melissa Griffin (NAVSTA), Kathy Marley (NAVSTA), Theresa Ryan (NAVSTA), LT Kurt Phoel (NAVSTA), Gregg Kolhweiss (NAVSTA), Franco LaGreca (EFANE), Stephen Parker (Tetra Tech), James Shafer (EFANE), Paul Kulpa (RIDEM), Kymberlee Keckler (USEPA)

David Dorocz opened the meeting and welcomed the group. He announced that Dr. David Brown would not be in attendance for the meeting.

David Dorocz then briefed the Restoration Advisory Board on the evening's agenda. Copies of the RIDEM letter dated October 8, 2002; Subject Tank Farms 1, 2, 3, 4 and 5 were provided to the RAB and are included as enclosure (1). The November 6, 2002, EPA letter addressing the Tank Farms 1 through 5 was also provided and is included as enclosure (2). Jim Shafer of the Naval Facilities Engineering Command Installation Restoration Program stated the Navy will be responding to the correspondence.

**MEETING MINUTES**

The following changes are made to the October minutes, as requested in recent correspondence. The changes requested are as follows:

On page 2, paragraphs 2 and 3, the notes talk about the temporary parking lot being *adjacent* to OFFTA. In response to this, David Dorocz clarified for the group that

the parking lot is located on a portion of OFFTA and a schematic was provided to the group to help in the clarification (enclosure (3)).

On pages 2 and 3, under the Public Information Committee report three additional items were discussed that were not reflected in the meeting minutes. The items are as follows:

- 1.) As discussed, interested members were to provide Melissa Griffin with constructive suggestions about the *Presentation Style* of the draft Proposed Plan for OFFTA prior to or during the November RAB.
- 2.) As addressed during the meeting the possibility of an interactive link within the RAB web site will not be possible. The link was considered for those citizens who are not able to be present at public meetings.
- 3.) A discussion regarding the possibility of video taping public meetings and making copies available in the public libraries is something to be considered in the future.

John Vitkevich asked for a motion to accept the previous meeting minutes for October with the above changes. The minutes were approved and then seconded by the group.

#### **INSTALLATION RESTORATION FISCAL YEAR 03 BUDGET - Jim Shafer**

Mr. Jim Shafer gave a presentation on the present and upcoming Navy budget. Enclosure (4) is the Navy Execution Plan for Fiscal Year FY 03. The enclosure also shows the projects that were paid for with unused (unspent) FY02 funds before the funding expired on September 30, 2002.

Jim Shafer introduced two of his coworkers from Engineering Field Activities North East that were present at the RAB meeting. Franco LaGreca and David Barcliff from the EFA North East.

Dr. Kathy Abbass addressed the past cost savings for the McAllister Offshore project. She asked if the new additional funding reflected on the budget came from those cost savings. Jim Shafer stated that the cost savings were

utilized for another major cleanup project within the Navy's Region I.

Kathy Abbass also asked Mr. Shafer if he has plans for retirement in the near future. Jim Shafer replied that he hopes to retire possibly in March of 2003 but plans to attend the upcoming January and February RAB meetings.

Jim then announced Thurston Gray and David Brown forwarded their input on the OFFTA Proposed Remedial Action Plan (PRAP) presentation style and format. Mr. Shafer thanked them for their responses, and plans to formally address their comments and suggestions.

#### **OFFTA PHASE 2 PREDESIGN INVESTIGATIONS BRIEF - STEVE PARKER**

Steve Parker began with review of the OFFTA cleanup project with discussion on the Predesign Investigations. The final Feasibility Study (FS) for OFFTA has been submitted and a formal response to comment letters from RIDEM and the EPA is currently being prepared.

A copy of the OFFTA brief and slide presentation is provided as enclosure (5). The first page of the enclosure shows a schematic of the OFFTA during the cleanup process. The draft Proposed Plan has been submitted and the dashed line represents possible changes to the 2003 remediation process. The Navy's preferred remedial action plan is designed to monitor the sediment at the OFFTA and to further evaluate and determine any changes to the remedy selection for this site.

In July of 2002 a second phase of predesign investigations for the OFFTA was performed. Since the offshore sediment was of concern, additional sampling was conducted. Enclosure (6) is in color and shows a map of the predesign sample stations. As noted in the enclosure, the Phase 2 sampling station sites are circled in red.

Steve Parker stated that one specific area of concern was the eelgrass. It is thought that this area should not be excavated. The Phase 2 site sampling was also conducted to obtain a better understanding of the chemistry of the sediment within the eelgrass.

The other area of concern was the area near the two outfall discharge pipes. These areas had the highest

concentration of contaminants present in the sediment. Here, samples were taken of the marine sediment (see enclosure (6)), as well as from the storm drains.

Kymberlee Keckler asked for clarification on how far from the outfall the Phase 2 sediment samples were taken. Steve referenced the schematics and pointed out that a sample was taken approximately 20 feet from the outfall and a sample was taken approximately 100 feet from the outfall.

Steve Parker spoke further with regard to the monitoring and site sampling. He stated that while looking at the sediments near the outfall pipes it appears that the hot areas seem to be moving around. He further stated, that when looking at the Phase 2 data, the eelgrass did not have contaminated areas above the health risk.

Dr. Kathy Abbass stated that this past summer was very dry and there has not been as much parking lot runoff as in the previous year. Jim Shafer and Steve Parker agreed that this should be taken into consideration when looking at the data.

Enclosure (7) contains individual handouts showing the sediment forensic analysis performed at the OFFTA. The enclosure is a more detailed analysis of the different chemical contaminants in the samples collected from the sampling sites. The forensic sample sites are numbered and correspond to the sampling sites of enclosure (6).

In the individual forensic samples of enclosure (7) each line represents a chemical contaminant (or added material) within the sample. Looking at the chemistry analysis of the data it was found that there is a heavy concentration of hydrocarbons and the data shows the contamination is decreasing overtime.

The similarities and differences in each sample were looked at to see the patterns between the sediment samples and the urban runoff samples (see enclosure (5) page 7, and enclosure (6)). According to the data it was found that the parking lot drains, which are up-gradient from the site, contain the same PAHs as the marine sediment. Steve further emphasized that this was an important finding.

Enclosures (8) and (9) are provided as color conceptual site models for the surface runoff and the

ecological risk assessment findings. The data here supports the idea that things are moving around.

Jim Shafer explained to the RAB that there is a planned meeting with the state and EPA to further evaluate the OFFTA. The PRAP will then be finalized and the draft ROD will be completed in accordance with the Navy budget plan in FY03. Mr. Parker stated that monitoring of the site will continue and the Naval Research Lab will be taking more PAH samples.

Jim Shafer further explained to the RAB that there is a current nationwide study being performed where different estuaries are being studied. The OFFTA was included as part of the study. This data is currently being analyzed and there was no cost to the Navy for being a part of the study. After interpreting the data with the regulators, the Navy hopes to share the outcome of the study with the RAB.

Dr. Abbass commented that it seems from the presentation that the source of the greatest amount of pollution from OFFTA is not the historical OFFTA activities but rather the large drainage area that feeds into the outfalls. She inquired how this would affect the cleanup of the site under superfund if it is found that the OFFTA is not considered the current contributing PAH source. Steve Parker explained to the RAB he feels the OFFTA will still be cleaned up as a superfund site due to soil and groundwater contamination.

Kathy Abbass asked Mr. Parker how close the nearest sewage outfall was to the marine sediment sample station off the shore of Jamestown, sample JPC03 (see enclosure (7)). Steve stated he would be glad to show Dr. Abbass where the sample station is and added the sample site was chosen since the Jamestown shoreline area has a similar discharge area to the Newport shoreline.

Jim Shafer told the committee members that the Navy feels the collection of more data will help in the remedy selection process for the beach and offshore sediment. Since PAHs are generally part of urbanization there is a project to make improvements to one primary storm line (see enclosure (8)). The project will add a vortex system to help reduce the amount of PAHs released to the environment. He added that the Naval Research Lab has sampled the area

in July of 2002 and October 2002, and will sample again in the spring of 2003.

### **COMMITTEE REPORTS**

#### **Education Committee - Kathy Abbass**

No report by Committee Chair.

#### **Planning Committee - Thomas McGrath and Ed Moitoza**

The committee members expressed the thought of having a planning session in January, to discuss the RAB schedule in calendar year 2003.

#### **Public Information Committee - David Brown**

Dr. David Brown forwarded his input for inclusion in the evening's Public Information Committee Report as he was unable to attend the meeting. Dr. Brown urged the RAB members to provide the Navy IR Program Manager, Melissa Griffin, with constructive suggestions on the draft Proposed Plan for OFFTA.

John Vitkevich spoke on Dave Brown's behalf. He supports the idea of having a planning session to define how to make the RAB more efficient next year. John Vitkevich said the members would like to have the planning session as part of the next RAB meeting in January.

The committee members discussed an open house public hearing. Jim Shafer suggested having the hearing for the OFFTA in early winter to discuss the ROD and PRAP.

#### **Membership Committee - Thurston Gray**

Mr. Gray stated there was a total of 14 community members present at the meeting with 1 community member excused from the meeting.

There are presently a total of 20 RAB community members, with the addition of Mr. Reardon and Mr. Fowler. Mr. Gray welcomed the two new members.

Kymberlee Keckler inquired about the balance of community members from each community. John Vitkevich suggested new members be recruited to increase to the number from Newport.

David Dorocz provided the Committee Chairs with two articles, previously published in local community newspapers. The purpose of the past newspaper articles was to recruit new RAB members. The articles may be used as an example to develop a new ad.

#### **Project Committee - Emmet Turley**

Mr. Turley discussed what is on the citizens' minds in Jamestown. Areas around the Jamestown shoreline are becoming quite shallow, but funding for a dredging project is a problem. A dredging project is usually performed in coordination with the Army Corps of Engineers (ACOE). A second problem is finding a place to dispose of the dredge material. Mr. Turley provided the RAB with enclosure (10), a memorandum and ACOE article titled "The Providence River Dredging Plan". David Dorocz stated that the State of Rhode Island recently created a Task Force to review dredged material disposal areas.

#### **NEW BUSINESS**

Melissa Griffin announced there will be no meeting in the month of December 2002.

Additionally, the Officers' Club will be undergoing renovations during the months of December, January and February 2003. The RAB meeting will be temporarily held at the Newport Hyatt on Goat Island. As a reminder to all members a special notice will be sent out the first week in January 2003, regarding this temporary change.

#### **NEXT MEETING**

The next meeting of the Restoration Advisory Board (RAB) will be on January 15, 2003, at 7:00 p.m. at the Hyatt Regency Newport. As requested by the RAB Committees, the meeting will include a planning session to discuss the schedule for calendar year 2003.

The meeting was adjourned at 8:45 p.m.

Enclosures:

- (1) RIDEM Tank Farm 1 thru 5 letter dated October 8, 2002
- (2) EPA Tank Farm 1 thru 5 letter dated November 6, 2002
- (3) OFFTA Temporary Parking Lot Drawing
- (4) Navy Budget Plan FY03 and FY02
- (5) Phase 2 Predesign Investigations Presentation Slides
- (6) Color Copy of the Predesign Sampling Stations Map
- (7) Sediment Sampling Forensic Analysis Handout
- (8) Conceptual Site Model for Surface Runoff
- (9) Ecological Risk Assessment Findings
- (10) Project Committee memo dated November 20, 2002 and  
Report on the Providence River Dredging Plan





RHODE ISLAND

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

October 8, 2002

Mr. Dennis Gagne  
USEPA-New England  
1 Congress Street – Suite 1100  
Boston, MA 02114-2023

Mr. Al Haring, Director  
US Department of the Navy, Northern Division  
Code 1823, Mail Stop #82  
10 Industrial Highways  
Lester, PA 19113-2090

RE: Naval Station Newport, Tank Farms 1, 2, 3, 4 & 5

Dear Mr. Gagne and Mr. Haring:

This letter is written in regards to the Navy's proposal, as outlined in a letter dated 17 July 2002 and further discussed in our 19 September 2002 meeting, to remove Tank Farms 1, 2, 3, 4 & 5 from the United States Environmental Protection Agencies (USEPA) Superfund Program and/or proceed with the remediation of these sites under a State lead rather than the current EPA lead. It is our understanding from the meeting that removing the Tank Farms from Superfund is not a viable option at this time since the sites have not been characterized to an extent where EPA is willing to consider de-listing them or finding that no CERCLA wastes exist at the sites.

Therefore, the Navy's remaining option is to request that the agencies consider proceeding with the remediation of these sites through a State-lead scenario under our Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations). In order for this to occur, we believe the following conditions or stipulations must be met or agreed to prior to commencement of this alternative:

- EPA must agree to allow the clean-up to proceed under a State-lead scenario, thus making EPA the support agency. If this were to be the case, be advised that this scenario typically involves EPA conducting it's own risk assessment upon completion of the clean-up to determine if the site needed any further remediation under CERCLA and possibly recommend a No-Action ROD.
- EPA, the State, and the Navy must consider amending or supplementing the Federal Facilities Agreement (FFA) to document this new agreement and approach and allow the site clean-up to proceed in this manner.

Enclosure (1)

OCT 15 2002

30% post-consumer fit

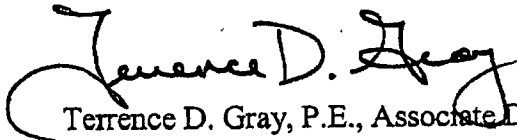
Unless the FFA itself is amended in sufficient detail to outline all aspects of our new partnership and approach, that approach must be documented in an Enforcement Agreement, such as a Memorandum of Agreement (MOA), with EPA. Under such an agreement the EPA would agree to allow the State to take the lead on the project. Under a Voluntary Procedure Letter or Letter of Responsibility with the Navy, the State would require several stipulations, including;

- A) The Navy must agree to completely fund DEM's oversight of the project,
- B) The Navy must provide a complete schedule of the investigation and remediation activities, and
- C) Monies for any oversight contractors the State may hire to aid their review of deliverables or conduct field oversight must be allocated.

The Navy must fully comply with all applicable State regulations including the Remediation Regulations. Failure by the Navy to comply with any portion of the State administrative process would result in termination of the MOA with EPA and therefore resumption of an EPA-lead on the project.

We eagerly await your response. If you have any questions or require additional information please contact Matt DeStefano of the Office of Waste Management at (401) 222-2797, ext. 7141 or myself at (401) 222-6677, ext. 2410.

Sincerely,



Terrence D. Gray, P.E., Associate Director of Air, Compliance and Waste  
Department of Environmental Management

cc    L. Hellested, Chief, DEM OWM  
      M. DeStefano, DEM OWM  
      K. Owens, DEM-OWM  
      R. Gottlieb, DEM OWM  
      P. Kulpa, DEM OWM  
      K. Keckler, USEPA – New England  
      ✓ M. Griffen, NETC  
      F. La Greca, DOD



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

1 CONGRESS STREET, SUITE 1100  
BOSTON, MASSACHUSETTS 02114-2023

November 6, 2002

Al Haring, Chief  
U.S. Department of the Navy  
Naval Facilities Engineering Command  
Northern Division  
Installation Restoration Program  
10 Industrial Highway  
Code 1823, Mail Stop 82  
Lester, PA 19113-2090

Dear Mr. Haring:

Thank you for your e-mail message dated October 18, 2002 where you inquire about addressing Tank Farms 1 through 5 under a State lead scenario. It is EPA's understanding from the September 19, 2002 meeting that the Navy intends to address the investigation and any required cleanup of the Tank Farms under Superfund. Our concerns outlined in our July 29, 2002 letter remain and this letter should in no way be construed to agree to remove the Tank Farms from either the FFA or the Superfund. RIDEM's October 8, 2002 letter reiterates this.

EPA's 1997 *Lead Regulator Policy for Cleanup Activities at Federal Facilities on the National Priorities List* discusses the circumstances where EPA might transfer lead regulator status to a state (see <http://www.epa.gov/swerfftr/documents/leadreg.htm>). The policy is clear that even when a cleanup becomes state lead, EPA retains all of its authority under CERCLA to implement a remedy at the site which is compliant with the statute and the NCP. Therefore, while the proposed approach appears to cost more and take just as long, EPA is amenable to this approach.

EPA and RIDEM have entered into an Enforcement Agreement to transfer lead regulator status to the State at the private West Kingston/URI Dump Superfund Site. This agreement took a significant amount of time to negotiate and makes clear that investigations would be conducted in compliance with federal standards regarding risk assessment and contaminant identification. While RIDEM's letter mentions that the State-lead scenario will involve cleanup under the State's *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases*, EPA policy is clear that **all** Applicable or Relevant and Appropriate Requirements must also be addressed. The Navy must ensure that the investigation (and any required cleanup) addresses such requirements. All Superfund concerns must be satisfied regardless of which regulatory agency is the lead. In particular, EPA maintains that site investigations for contaminants regulated under CERCLA are required to determine whether additional investigations are necessary and to ensure that the proposed use of the property is compatible with site contamination levels. Finally, the agreement is clear the EPA retains the right to take back its lead regulator status if the state-lead cleanup is determined to inadequately address CERCLA requirements.

Toll Free • 1-888-372-7341

Internet Address (URL) • <http://www.epa.gov/region1>

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on Recycled Paper (MII)

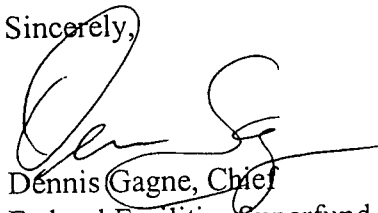
Enclosure (2)

The terms found in the Enforcement Agreement for the West Kingston Superfund Site need to be incorporated as an amendment to the FFA before EPA could agree to transfer the lead agency status to the State. Alternatively, the site could remain as an EPA-lead site under the existing FFA and the Navy could proceed with an investigation to address data gaps at the Tank Farms. As stated in my letter to you dated July 29, 2002, if no CERCLA contaminants are located a No Further Action ROD could be pursued.

On October 25, 2002, Kymberlee Keckler of my staff e-mailed a guidance document entitled *Reusing Superfund Sites: Golf Facilities Where Waste is Left on Site* to Jim Shafer of your staff. This information may be useful when considering golf facility reuse options during the process of selecting, designing, and implementing a cleanup plan for a Superfund Site.

I look forward to working with you and the Rhode Island Department of Environmental Management toward the cleanup of the Tank Farms at Naval Station Newport. Issues related to the environmental assessment conducted under NEPA will be transmitted under separate cover. Please do not hesitate to contact me at (617) 918-1431 should you have any questions or wish to arrange a meeting.

Sincerely,



Dennis Gagne, Chief  
Federal Facilities Superfund Section

cc: Terrence Gray, RIDEM, Providence, RI  
Paul Kulpa, RIDEM, Providence, RI  
Melissa Griffin, NETC, Newport, RI  
David Peterson, USEPA, Boston, MA  
Jennifer Stump, Gannet Fleming, Harrisburg, PA



# ER,N BUDGET PLAN

## NAVSTA NEWPORT, RI

		<b>FY03</b>	<b>FY02*</b>
McAllister LF	Operation & maintenance	\$200K	\$300K LTM offshore
Melville LF	GW monitoring	\$25K	
Tank Farms	Site Investigation	\$473K	\$350K SI/RA
	Removal Action		
OFFTA	Remedial Design	\$303K	\$135K PRAP/ROD
Gould Island	RI Field Work	\$1.1M	\$125K RI plan
	PCB Removal	\$140K	
NUSC Disposal	SI Field Work	\$150K	

**TOTAL**

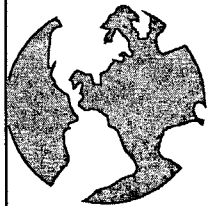
**\$2.4M**

**\$910K\***

• unspent from fy02

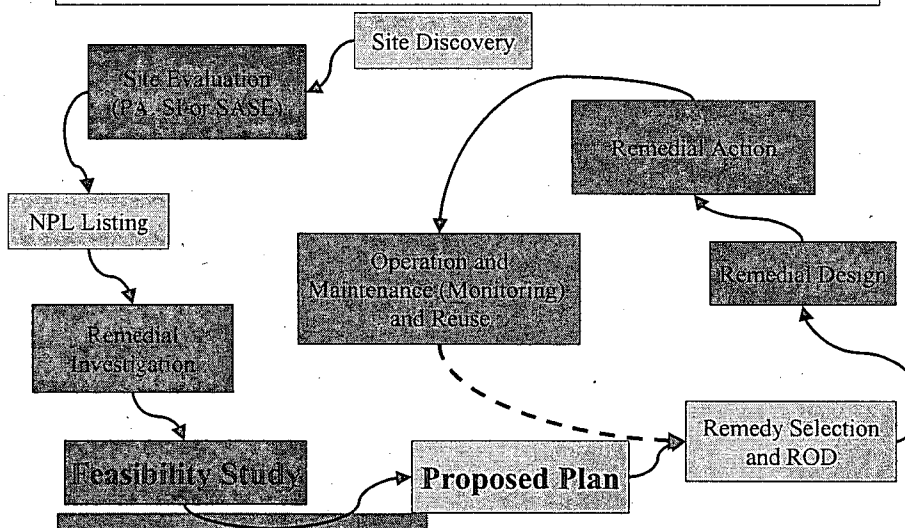
Enclosure (4)

# Old Firefighting Training Area Phase 2 Pre-design Investigations

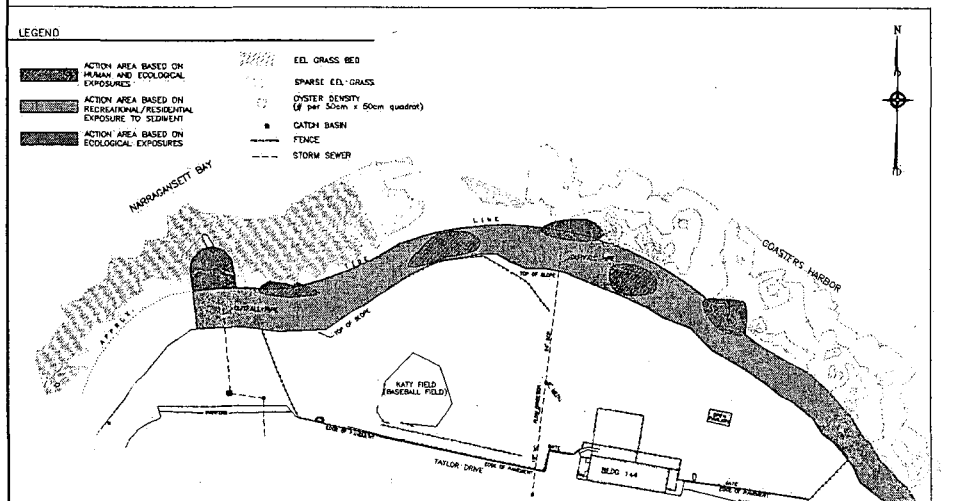


RAB PRESENTATION  
November 20, 2002

## OFFTA In The CERCLA Process



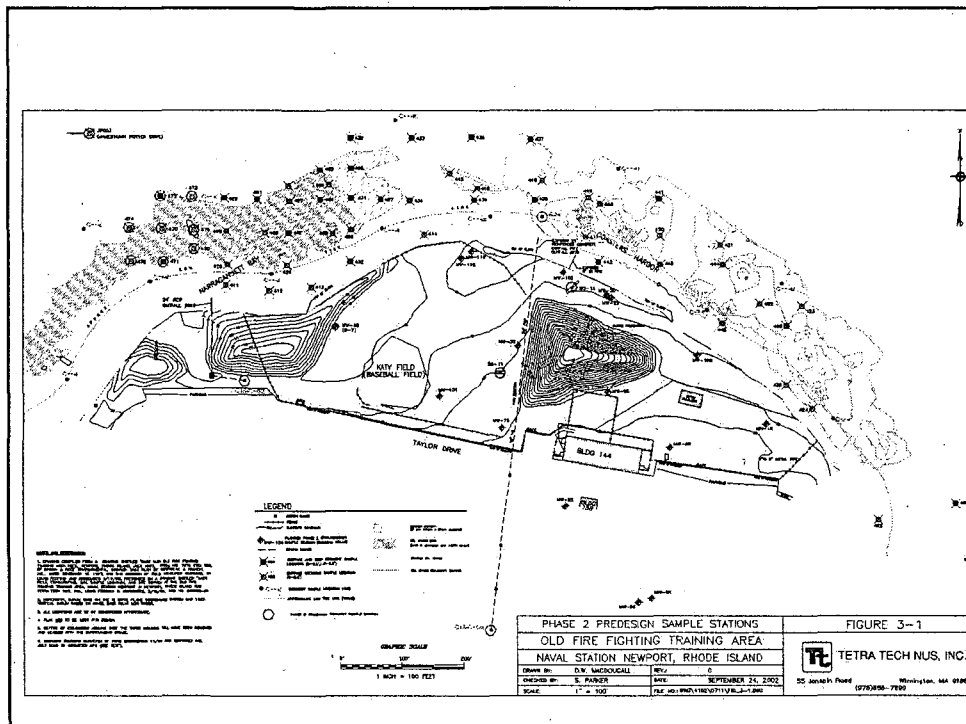
## Feasibility Study: Possible Action Areas



## Recent Steps: Phase 2 Predesign Investigations

- Confirmation of contaminants in eelgrass area
- Forensic analysis of selected sediment and soils
- Groundwater sampling and analysis





## Phase 2 Predesign

### Eelgrass Area Sediment Results

- PRGs Not exceeded in the eelgrass area this time
- Former "hot spot" found to be below cleanup goals
- Elevated contaminants west of former hot spot
- Uncertainty in behavior of contaminants in sediment

## Phase 2 Predesign

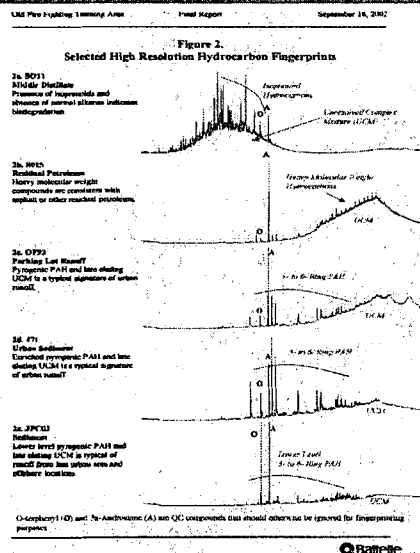
### Sediment Forensic Analysis

- Refer to Handouts
  - Hydrocarbon Fingerprint
  - PAH Analyte Pattern
  - PAH Analyte Ratios
  - Alkane Fingerprints
  - Terpane Biomarker Fingerprint

## Sediment Forensic Analysis

### Hydrocarbon Fingerprint

- Selected samples graphed
- Peaks represent chemicals in the sample
- Components similar in storm drain and marine sediments
- Components in soil different

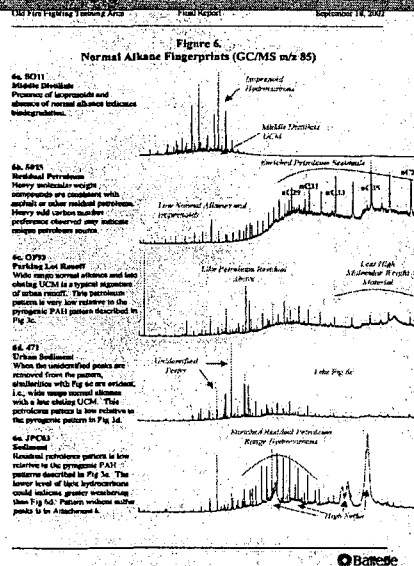




# Sediment Forensic Analysis

## Alkane Fingerprints

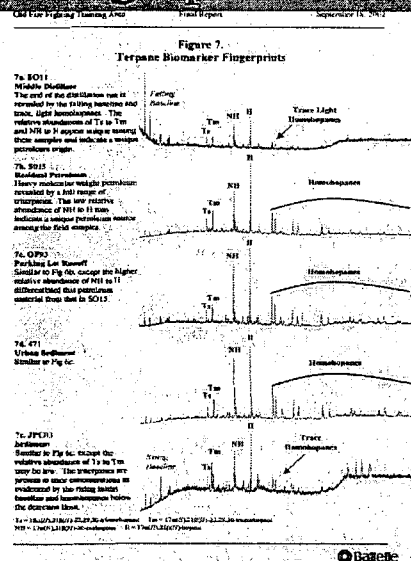
- SO-11 Alkanes missing, indicating degradation
- SO-15 Large MW compounds indicate residual petroleum
- OF-93 Typical signature of parking lot runoff
- SD471 similar to OF-93
- Reference sediment, later peaks indicate greater weathering of the contaminants



# Sediment Forensic Analysis

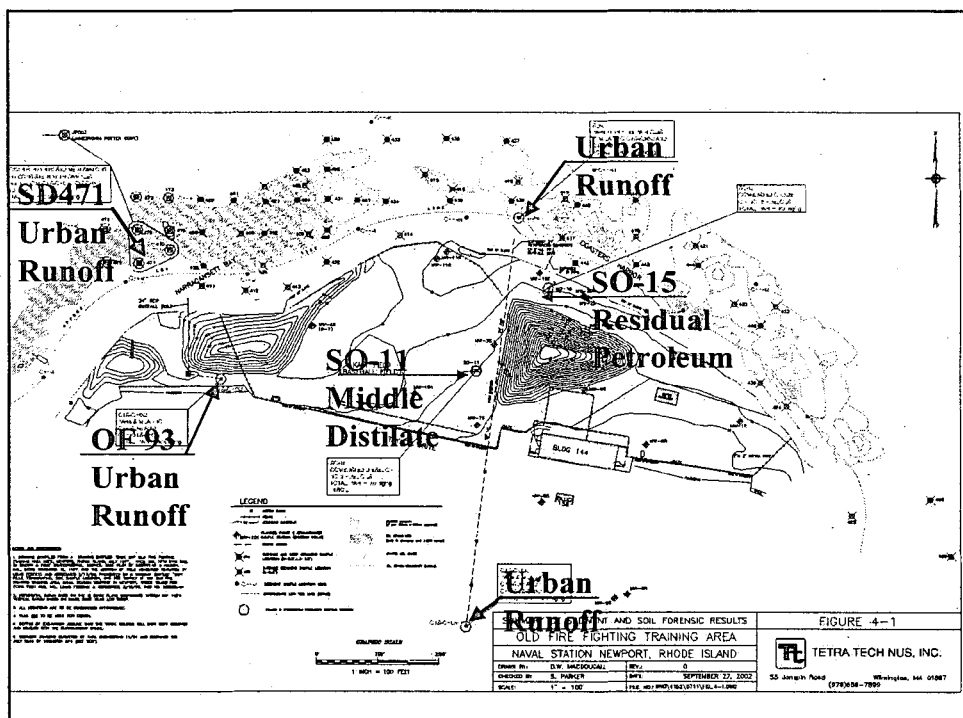
## Terpane Biomarker Fingerprint

- Biomarkers in the analytes
- similarities in one soil sample, the sediment, and the storm drain samples
- Reference sediment and other soil sample quite different



# Sediment Forensic Analysis

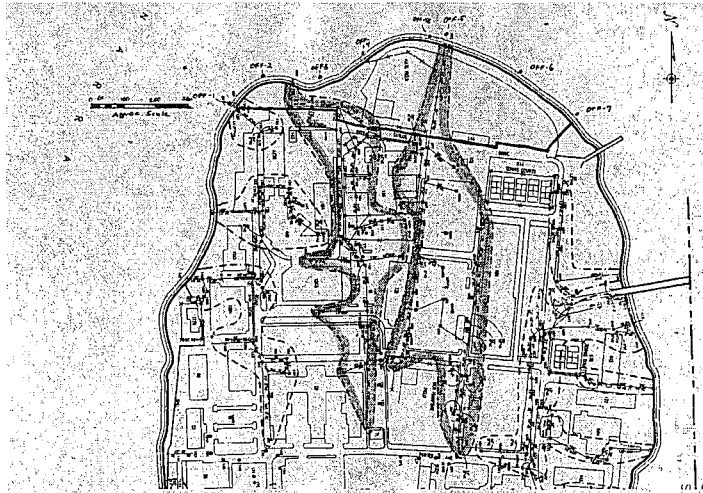
- Soil at site contained weathered oil and heavy molecular weight hydrocarbons
- Parking lot drains contained PAHs typical of urban runoff
- Contaminants in marine sediment at the shoreline matched that in the storm drains



## Conceptual Site Model:

### Surface Runoff

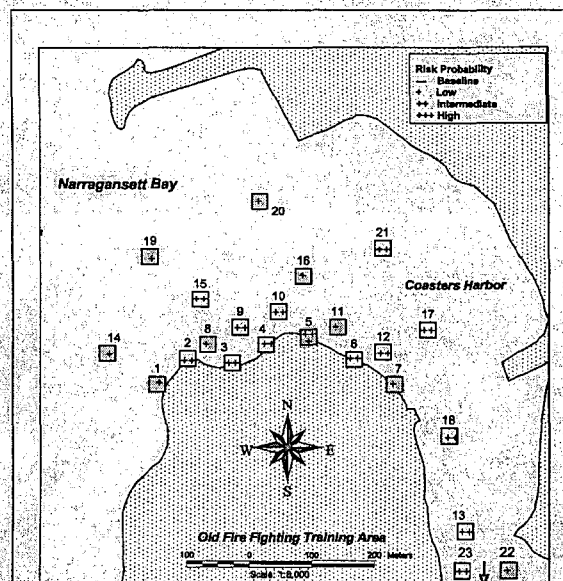
- Areas of high PAHs in sediment are co-located with outfalls
- Blue = 3.5 Acres
- Green = 5.4 Acres



## Ecological Risk Assessment:

### Findings

- One High risk station co-located with the primary outfall



## Phase 2 Predesign

### Groundwater Results

- Organic Compounds detected above PRGs in 1997 were below PRGs in 2002
- Manganese exceeds PRG (source unknown)
- Salinity in groundwater precludes use as domestic or municipal water supply

## Phase 2 Predesign:

### Conclusions

- Behavior of contaminants in sediment is uncertain, dynamic
- Sediment contamination is being contributed to by urban runoff
- Soil contamination is somewhat different from sediment contamination
- Groundwater is not anticipated to be used as a water supply

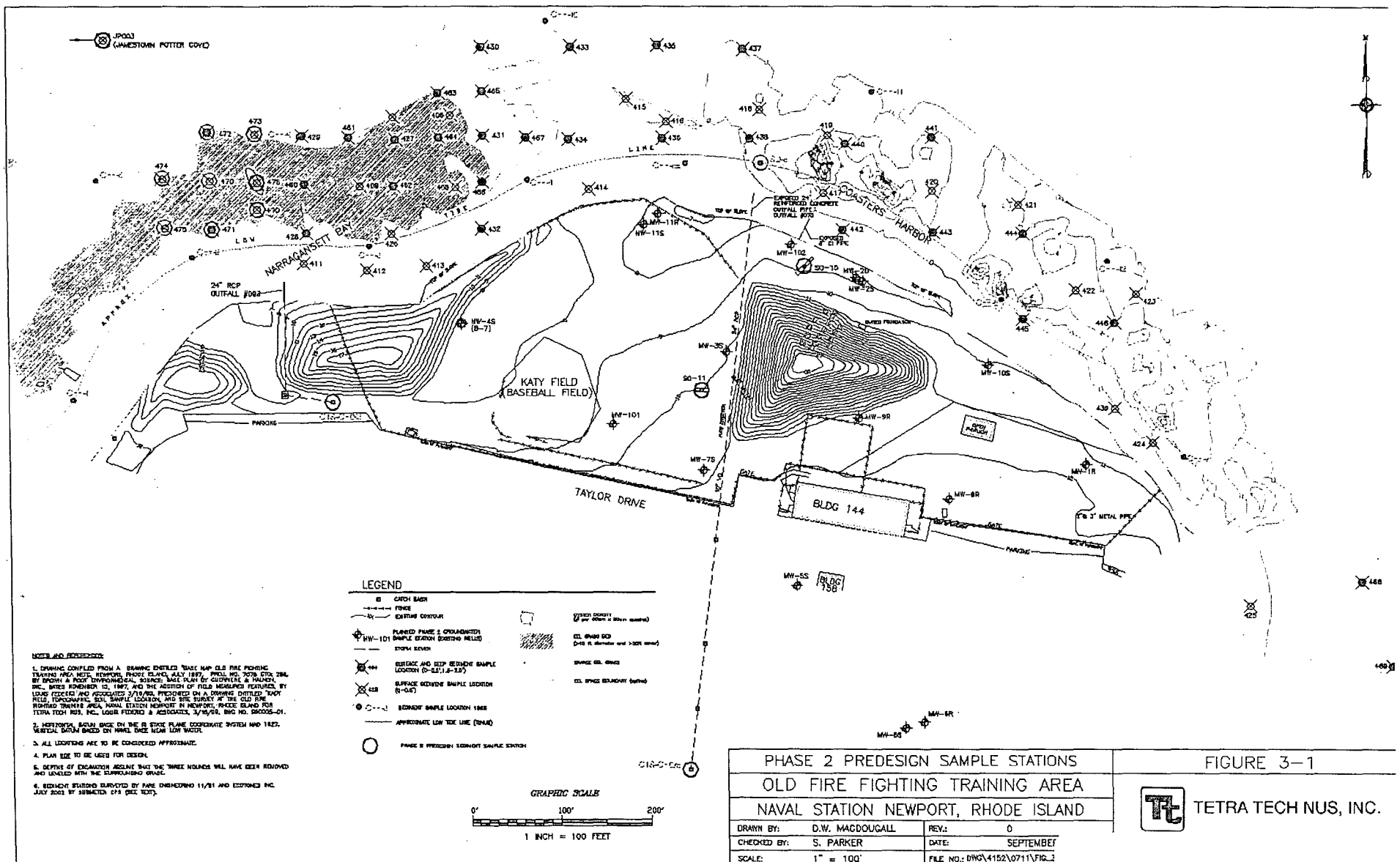




## OFFTA

### Next Steps

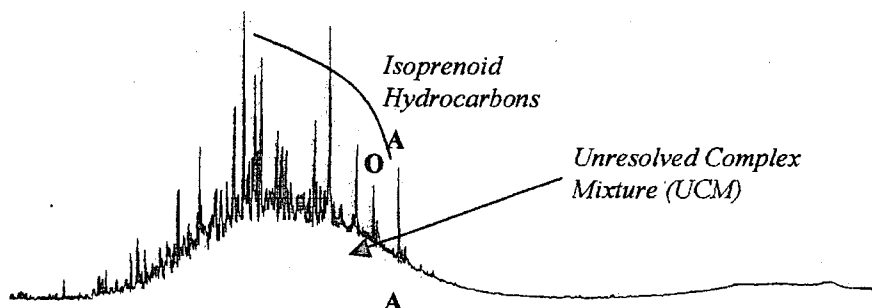
- Navy and Regulators to discuss preferred actions
- Proposed Plan to be submitted this winter
  - Public Meeting
  - Public Comment Period
- Decision for remedial action in 2003



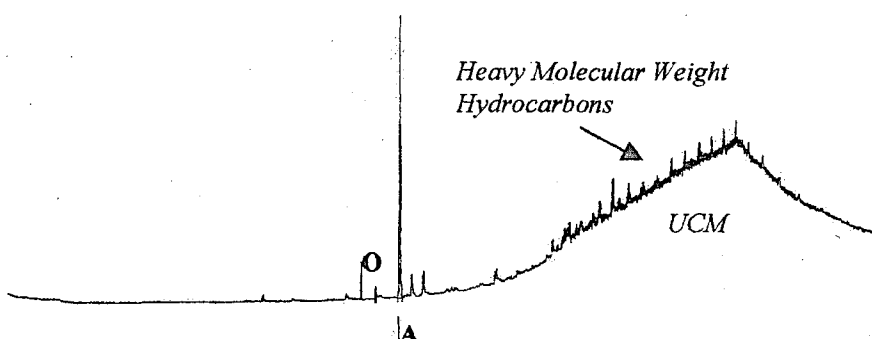
**Figure 2.**  
**Selected High Resolution Hydrocarbon Fingerprints**

**2a. S011****Middle Distillate**

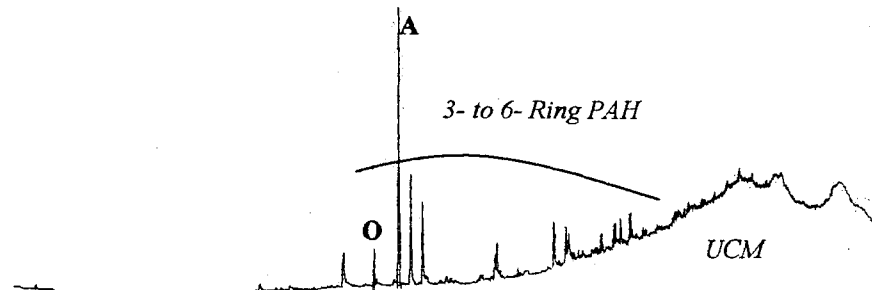
Presence of isoprenoids and absence of normal alkanes indicates biodegradation.

**2b. S015****Residual Petroleum**

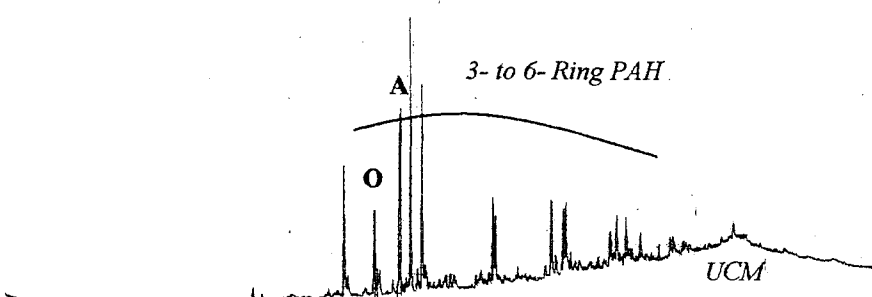
Heavy molecular weight compounds are consistent with asphalt or other residual petroleum.

**2c. OF93****Parking Lot Runoff**

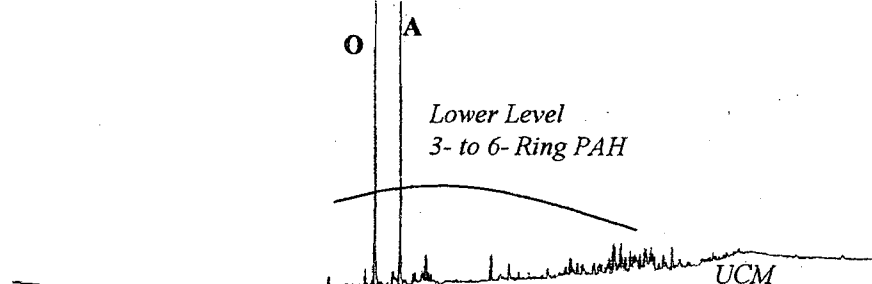
Pyrogenic PAH and late eluting UCM is a typical signature of urban runoff.

**2d. 471****Urban Sediment**

Enriched pyrogenic PAH and late eluting UCM is a typical signature of urban runoff.

**2e. JPC03****Sediment**

Lower level pyrogenic PAH and late eluting UCM is typical of runoff from less urban area and offshore locations.

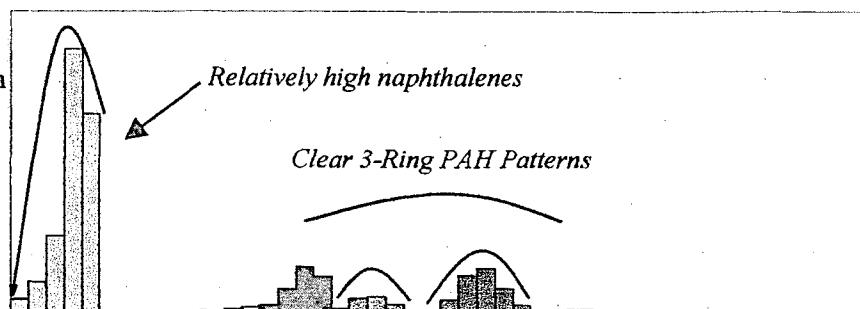


O-terphenyl (O) and 5a-Androstane (A) are QC compounds that should otherwise be ignored for fingerprinting purposes

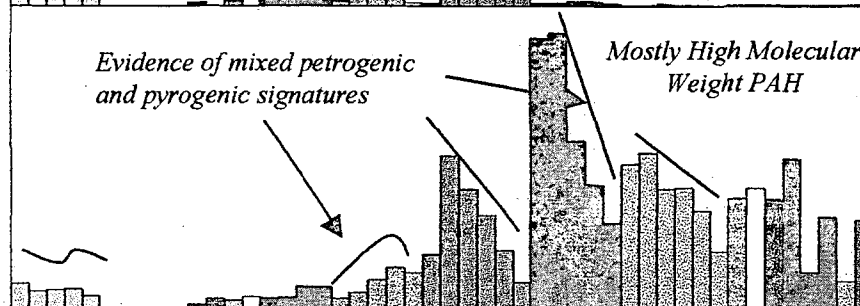
**Figure 3.**  
**PAH Analyte Patterns**

**3a. S011****Middle Distillate**

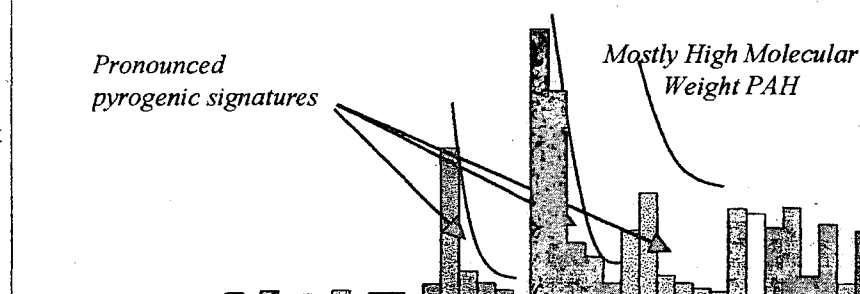
Enriched in 2- and 3-ring PAH with a petrogenic profile.

**3b. S015****Residual Petroleum**

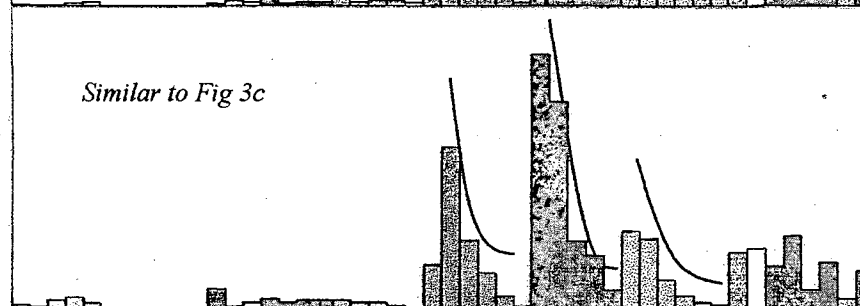
Wide PAH range (2- to 6-rings) with mixed petrogenic and pyrogenic profiles. This pattern is consistent with a partially combusted crude or heavy fuel oil.

**3c. OF93****Parking Lot Runoff**

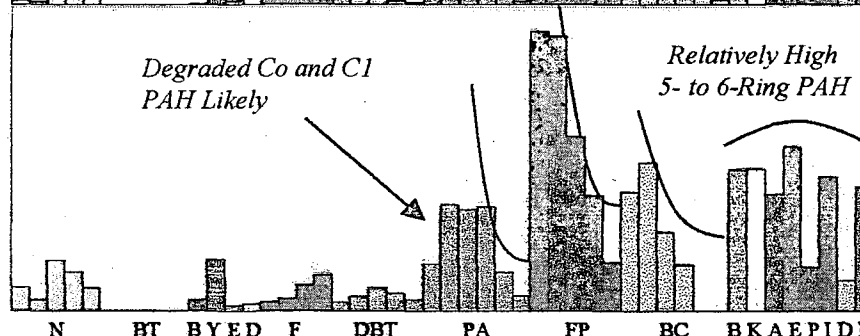
Pyrogenic 3- and 4- ring PAH with strong 5- and 6- ring PAH presence. This pattern is consistent with atmospheric fallout (see Fig 4e) that accumulates in the sediment matrix.

**3d. 471****Urban Sediment**

Similar to Fig 3c with slightly lower parent relative to alkylated PAH. This slight reduction in parent PAH is consistent with environmental weathering.

**3e. JPC03****Sediment**

Similar to Fig 3d with more pronounced reduction in parent PAH indicative of more advanced weathering.

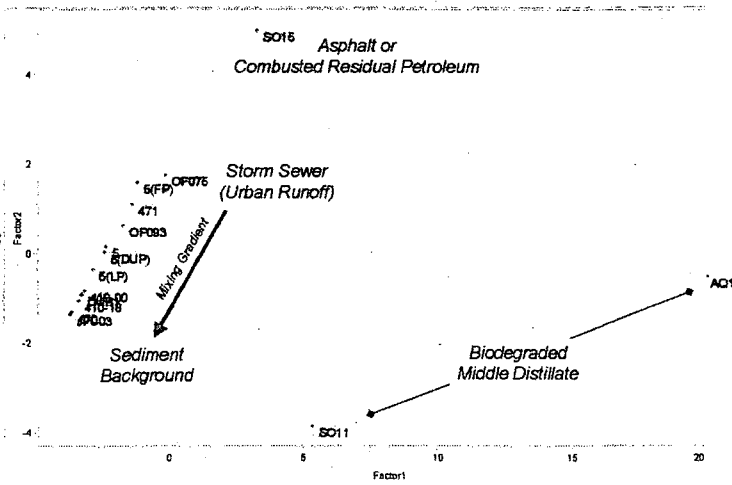


N BT BYED F DBT PA FP BC BKAEPIDB

**Figure 5.**  
**Principal Components Analysis of PAH Analyte Ratios**  
**In Field and Reference Samples**

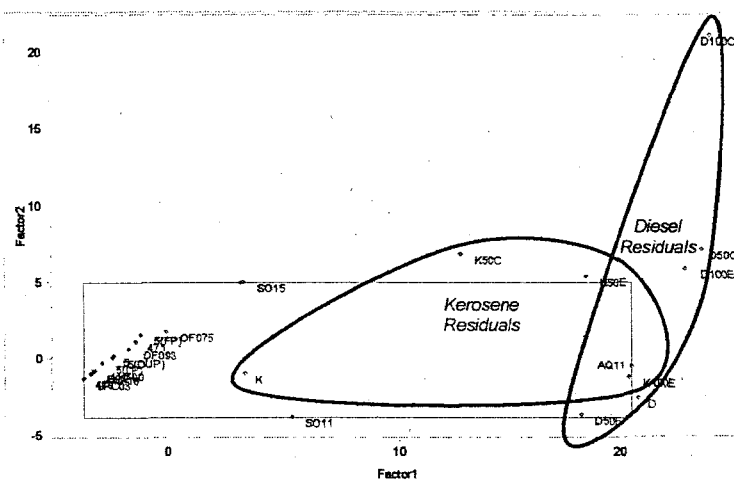
### 5a. Sample Groupings (PCA Scores Plot).

The middle distillates were located in the lower right due to petrogenic 2- and 3-ring PAH. The residual petroleum exhibited a mixed petro- and pyrogenic PAH pattern with a bias towards 4- to 6-ring PAH. The sediments were fairly similar differing mostly in the relative abundances of 4- through 6-ring PAH.



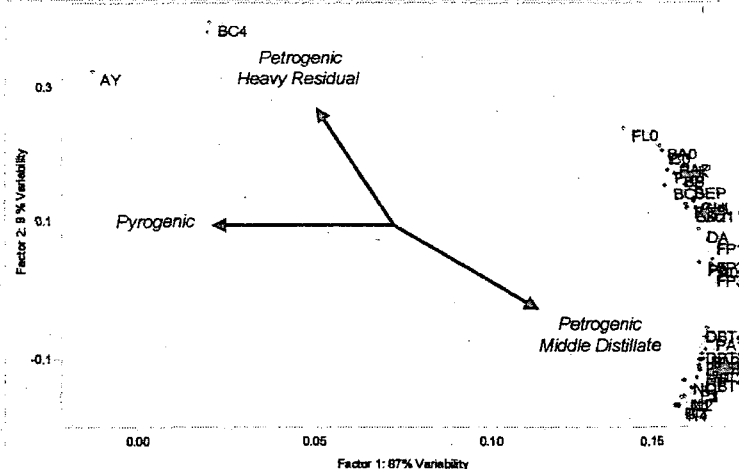
### 5b. Sample Grouping (PCA Scores Plot Modified)

Plot 5a shown with selected kerosene and diesel reference materials. Sample AQ11 clustered with the diesel samples while SO-11 plotted to the lower left due to the enriched 2-ring PAH – indicating a light diesel source material with slight evaporation effects in AQ-11. Like SO-11 and AQ-11, the reference materials were distinct from the sediment samples.



### 5c. Analyte Groupings (PCA Loadings Plot).

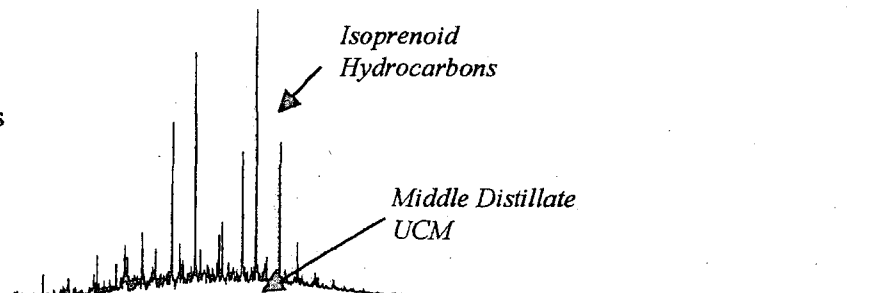
Principal components 1 (x-axis) and 2 (y-axis) contain 87% and 9% of the variability, respectively. The PAH concentration data illustrate three primary types of field samples: pyrogenic urban runoff, residual petroleum, and middle distillate.



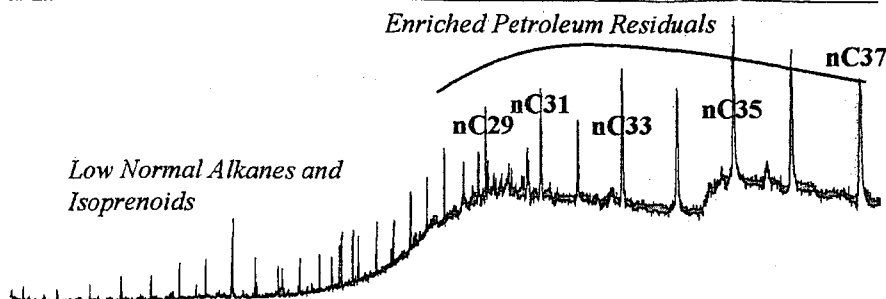
**Figure 6.**  
**Normal Alkane Fingerprints (GC/MS m/z 85)**

**6a. S011****Middle Distillate**

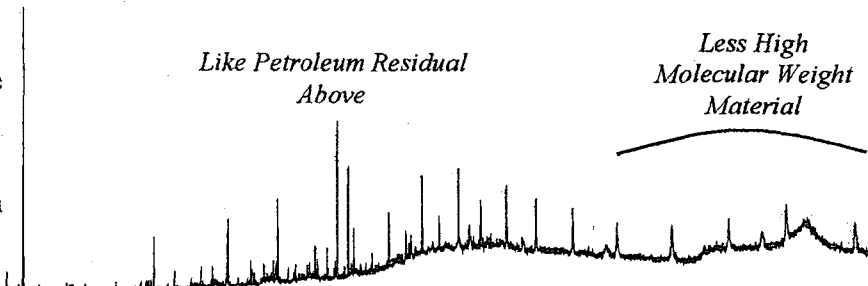
Presence of isoprenoids and absence of normal alkanes indicates biodegradation.

**6b. S015****Residual Petroleum**

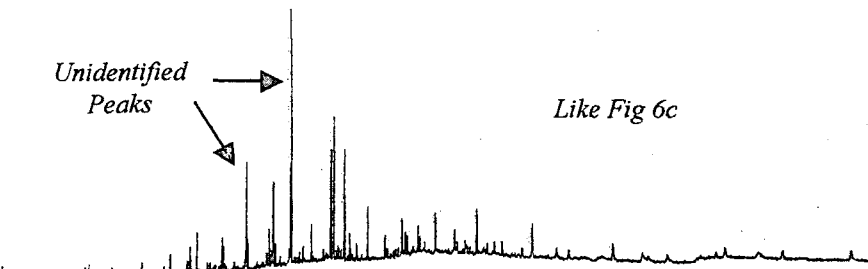
Heavy molecular weight compounds are consistent with asphalt or other residual petroleum. Heavy odd carbon number preference observed may indicate unique petroleum source.

**6c. OF93****Parking Lot Runoff**

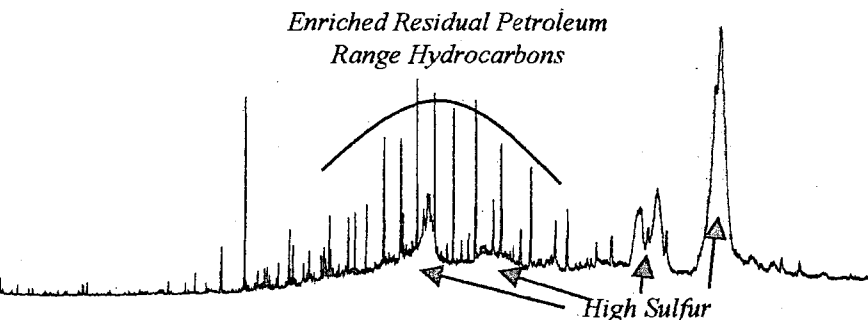
Wide range normal alkanes and late eluting UCM is a typical signature of urban runoff. This petroleum pattern is very low relative to the pyrogenic PAH pattern described in Fig 3c.

**6d. 471****Urban Sediment**

When the unidentified peaks are removed from the pattern, similarities with Fig 6c are evident; i.e., wide range normal alkanes with a late eluting UCM. This petroleum pattern is low relative to the pyrogenic pattern in Fig 3d.

**6e. JPC03****Sediment**

Residual petroleum pattern is low relative to the pyrogenic PAH patterns described in Fig 3e. The lower level of light hydrocarbons could indicate greater weathering than Fig 6d. Pattern without sulfur peaks is in Attachment 6.

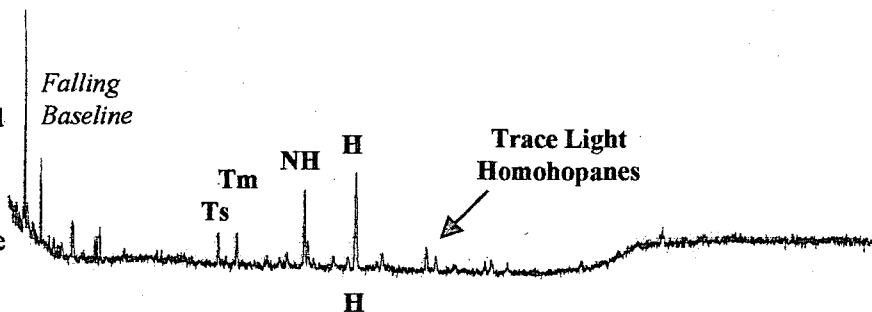


**Figure 7.**  
**Terpane Biomarker Fingerprints**

**7a. S011**

**Middle Distillate**

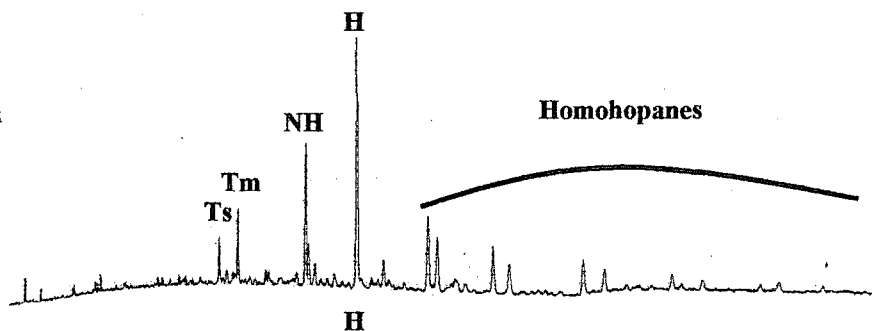
The end of the distillation run is revealed by the falling baseline and trace, light homohopanes. The relative abundances of Ts to Tm and NH to H appear unique among these samples and indicate a unique petroleum origin.



**7b. S015**

**Residual Petroleum**

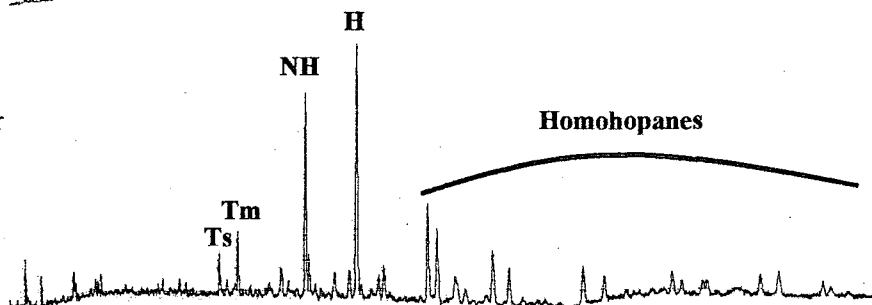
Heavy molecular weight petroleum revealed by a full range of triterpanes. The low relative abundance of NH to H may indicate a unique petroleum source among the field samples.



**7c. OF93**

**Parking Lot Runoff**

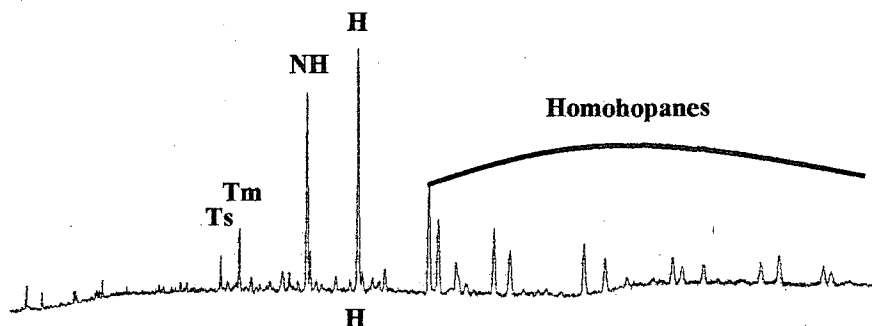
Similar to Fig 6b, except the higher relative abundance of NH to H differentiated this petroleum material from that in S015.



**7d. 471**

**Urban Sediment**

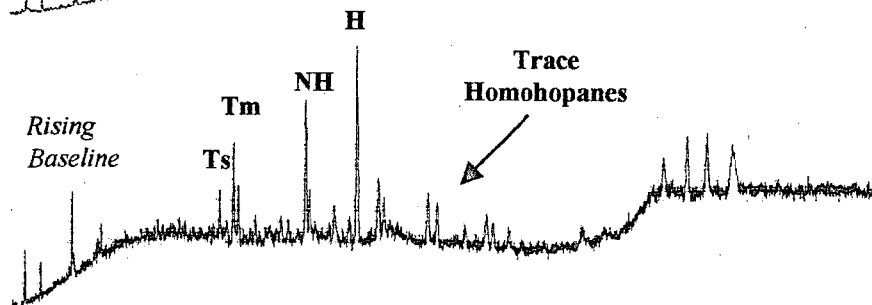
Similar to Fig 6c.



**7e. JPC03**

**Sediment**

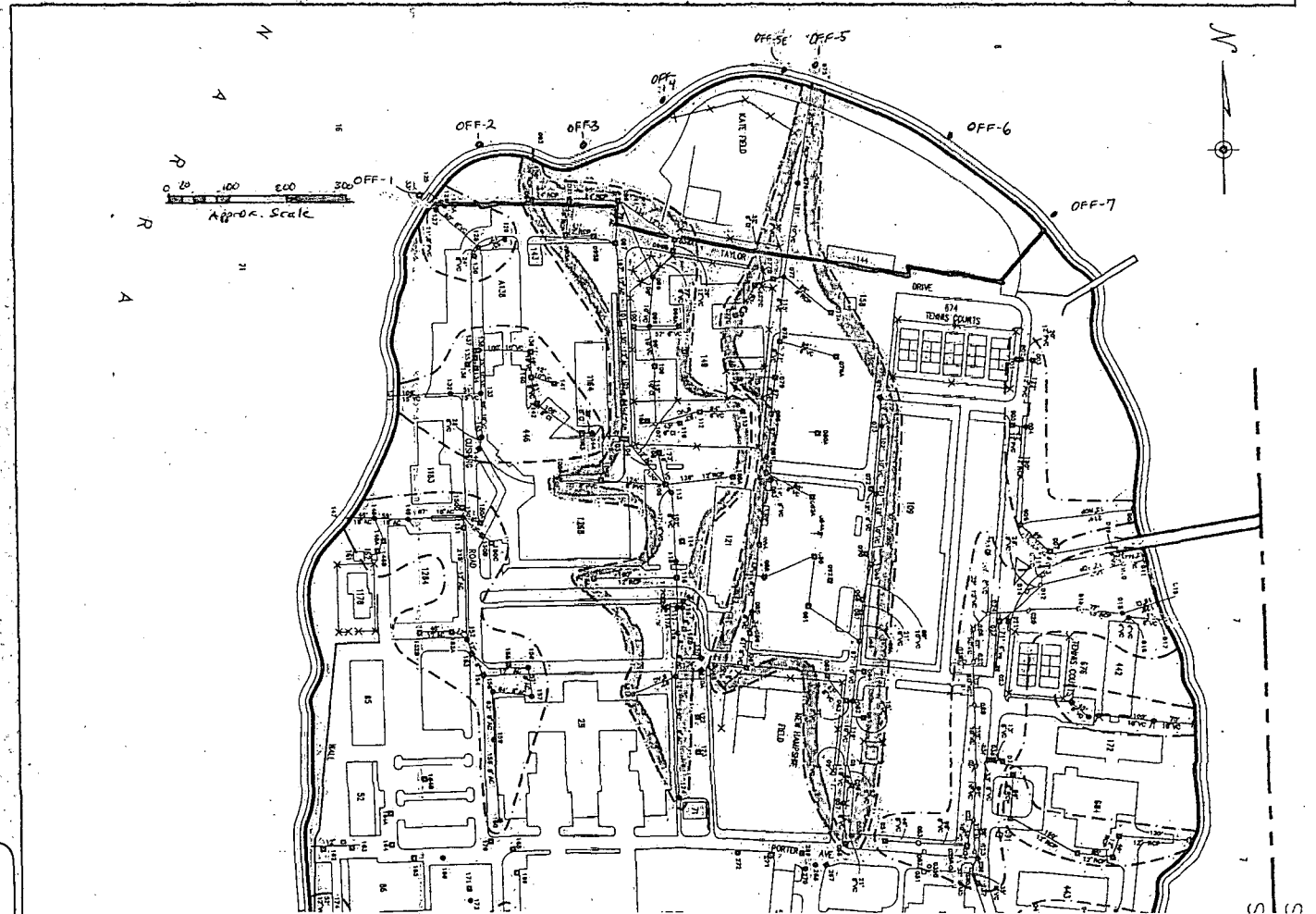
Similar to Fig 6c, except the relative abundance of Ts to Tm may be low. The triterpanes are present at trace concentrations as evidenced by the rising initial baseline and homohopanes below the detection limit.



Ts = 18 $\alpha$ (H),21 $\beta$ (H)-22,29,30-trisnorhopane    Tm = 17 $\alpha$ (H),21 $\beta$ (H)-22,29,30-trisnorhopane  
NH = 17 $\alpha$ (H),21 $\beta$ (H)-30-norhopane    H = 17 $\alpha$ (H),21 $\beta$ (H)-hopane

# Conceptual Site Model: Surface Runoff

- Two Primary Outfalls
- Blue = 3.5 acres
- Green = 5.4 acres



Enclosure (8)

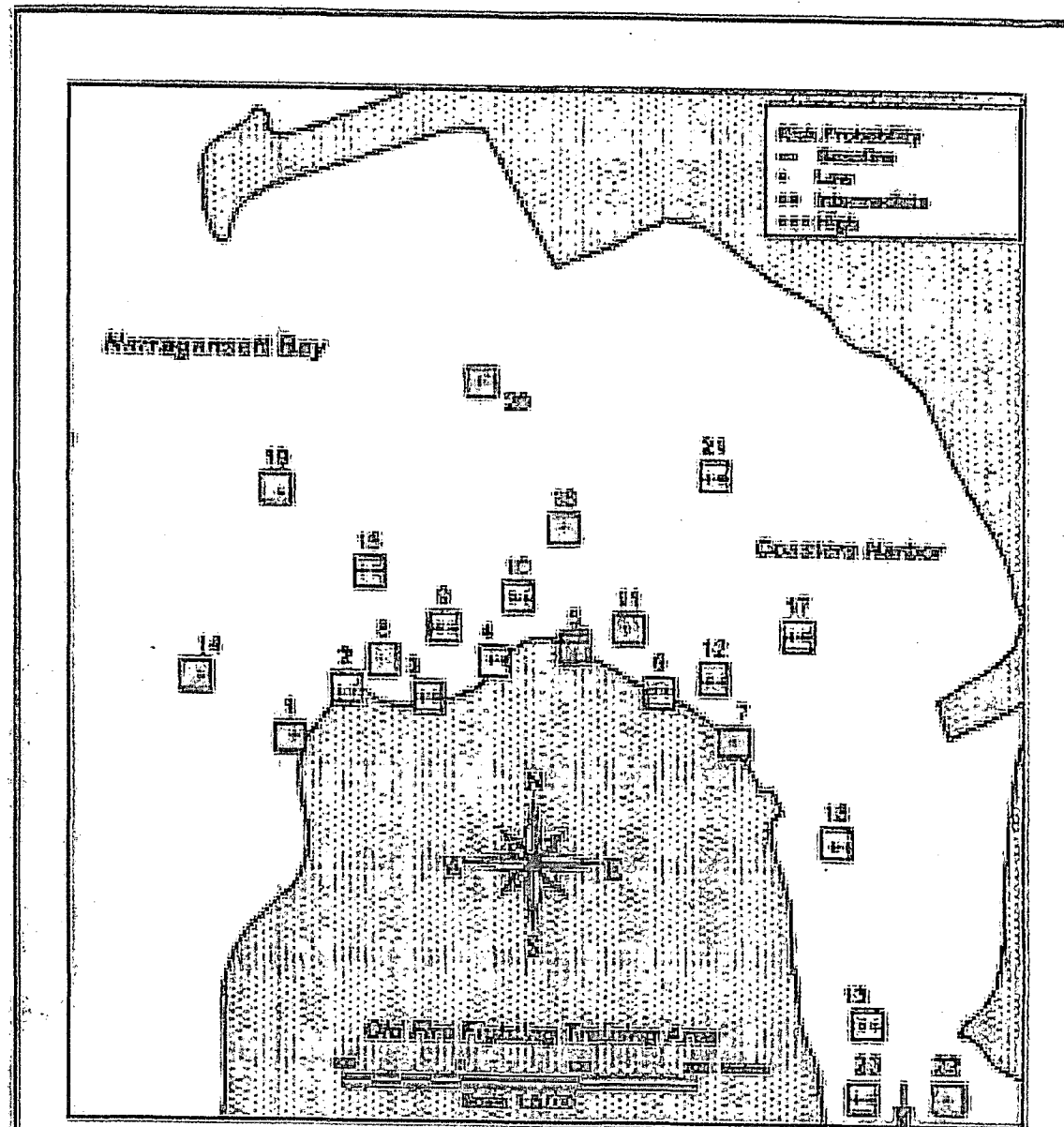


# Ecological Risk Assessment:

## Findings

- High probability for risk at 1 station
- Intermediate probability for risk at 13 stations
- Low probability for risk at 9 stations
- Baseline condition absent

Enclosure (9)



Newport Restoration Advisory Board  
Project Committee Report-Dredging  
November 20, 2002

The recent issue of "Rhode Island Boating" has an item about the dredging situation marinas, boat yards, and yacht clubs on and near Narragansett Bay are facing.

Dredging still remains a dilemma in Rhode Island despite the USACE's signing of a "Record of Decision", pertaining to the Final Environmental Impact Statement (FEIS) for the dredging of the Providence River. The FEIS calls for an open ocean disposal site in the Rhode Island Sound area. Perhaps, this site could be used to help the marina operators to dispose of their dredged materials and help them to remain in business?

At present, some marina operators are seeking to dispose materials at an upland site, but are finding exorbitant fees being charged.

Many feel the efforts by ACE and the EPA task force looking for off shore disposal sites is not making much progress. It is time for all interested parties to unite and do what's in the best interests of the economy and the environment of Narragansett Bay.

Submitted by:

*Emmet E. Turley*

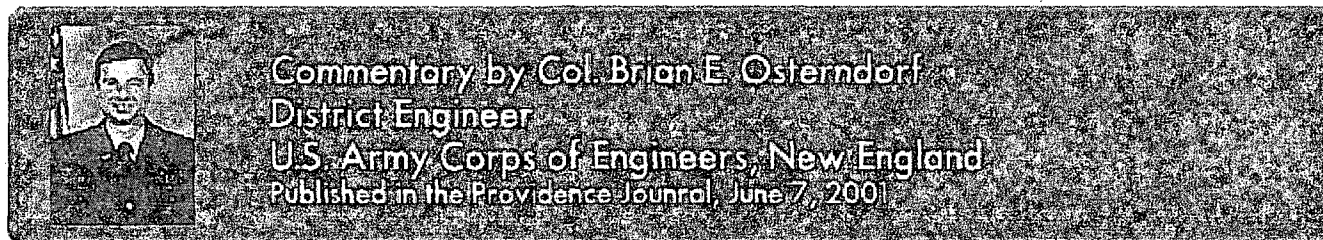
Emmet E. Turley, Chairperson

Enclosures:

"R.I. Boating" - 'Marina Dredging'  
"The Providence River Dredging Plan"  
"Dredging News Online"

## The Providence River Dredging Plan

Conclusions reached by Army Corps of Engineers in Providence River and Harbor EIS carefully consider all the impacts of dredging and disposal, from potential oil-spills to commercial fishing from long and short term impacts on the natural environment, to the cost of home heating fuel.



Later this summer, the Army Corps of Engineers will issue its Environmental Impact Statement (EIS) on the Providence River and Harbor Maintenance Dredging Project. Our role is to provide comprehensive scientific and engineering analysis of all the issues associated with this project, on behalf of the State of Rhode Island, the project sponsor. This impact statement is a lengthy one, consisting of the details of extensive testing and analysis of various alternatives for how dredging would be done and how the material has accumulated in the federal channel over the 30 years since the channel was last dredged will be managed. The purpose of the EIS is to select a disposal site to be used for a limited period of time (5 years, with provisions for a 5-year extension) that provides the best solution for maintaining the Providence River channel and 23 private facilities (9 commercial terminals and 14 marinas) in the area.

The dialogue that has occurred over the past several years and the decisions that are to be made are very important to the economic health and environmental well-being of citizens of Rhode Island. Many people and organizations have contributed immensely to developing this plan and identifying good choices. Stakeholders include the Rhode Island Legislature and the Coastal Resources Management Council, Governor Almond and his staff, the entire Rhode Island congressional delegation, Save The Bay and other environmental groups, port operators and ship owners, federal and state agencies and hundreds of private citizens.

Maintaining the channel is critical to Rhode Island. The extensive shoaling in the 40 foot channel – in some places, the shoaling is over 10 feet – restricts the efficient passage of tankers into the port, and the resultant delays and requirements for transferring the oil to shallower draft vessels (lightering) while in the Bay increase the cost of fuel and pose spill risks. As we consider the removal and subsequent disposition of the approximate 4.3 million cubic yards of sediment necessary to restore the channel to its authorized dimensions, it is important that we assess the environmental, commercial and recreational impacts dredging would have on the valuable resources of Narragansett Bay and Rhode Island Sound. Consequently, the conclusions we reached after our testing and analysis do not point to strictly a cheapest solution, without regard to impacts. Rather, we have concluded that an open ocean disposal site, not a site in the bay, is the best solution for the disposal of material that is tested and found suitable for open water disposal, even

though this would necessitate an over 70 mile round trip from the dredging site to the disposal site. The public review and participation has helped us get to this point.

Not all of the material that needs to be removed from the channel is suitable for disposal in this conventional manner. Over one million cubic yards of contaminated sediments will "be buried" in 5 large pits sited in the channel itself, near the Fox Point area. We have had great success in using this technique in dredging Boston Harbor. Moreover, this method provides an opportunity for the beneficial use of the material that would be removed from these pits, or more technically, confined aquatic disposal cells (CADs). Whereas the very silty and fine material we are removing from the channel has no commercial or construction value, the approximately 900 thousand cubic yards of material we will dig up to create these cells is more coarse-grained sand and gravel and has high potential for beneficial use. In fact, we are delaying the publication of the EIS slightly to allow us to more fully consider how Rhode Island might use this good material, which might normally cost \$10 more per cubic yard, for such projects as the I-195 improvement work. Additionally, even a yard of material that can be used beneficially will not have to be disposed of in the ocean; there will be one yard less impact on activities like commercial fishing.

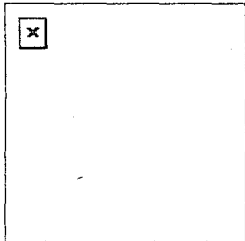
Our conclusions carefully consider the impacts of depositing dredged material in the Rhode Island Sound. There are many very productive fishing sites throughout the Sound and we took extra care to find a site that would impact commercial fishermen the least. The quantity of material to be placed will cover 730 acres (by creating opportunities for beneficial use of material the disposal site area can be reduced from 860 acres) and even our best site selection could result in an estimated cost to Rhode Island fishermen of \$100 thousand. We expect, and have seen at the several other disposal sites we maintain along the New England coast, that this impact will be temporary and ocean plant and animal systems recover within about one year of disposal activity.

We also carefully considered channel dimensions to determine if the full channel width and depth were still necessary. We analyzed considerable data on current and projected vessel traffic and evaluated several alternative width and depth combinations. We used recognized design reference criteria which gave us insights on safe and efficient vessel transit and concluded that the full authorized dimensions of the channel should be maintained. There is also sound economic analysis to support this conclusion. Each Rhode Island family will save on its home-heating bill each year if the channel was maintained 40 feet instead of 37 feet, and the oil tankers won't have to wait for high tides to transit the terminals. We did optimize the channel dimensions in two areas no longer used in the upper most part of the channel and will not have to dredge and dispose of about 400,000 cubic yards as a result.

The bulk of our analysis involved the selection of the best disposal site, but we also studied how we could conduct the dredging itself in a manner that was most efficient and, at the same time, most protective of the fish and shellfish, particularly the winter flounder that live in or near the channel. These are not mutually exclusive considerations and we have devised a plan that sequences our work in such a fashion that we can dredge all the way around while significantly avoiding areas that are most sensitive during periods we know flounder spawn. Not only would we save costs associated with mobilizing and demobilizing dredging equipment, but we would be able to complete the dredging sooner and deliver

benefits to you earlier.

We will publish the EIS in mid-August this year, conduct a public meeting and provide public a 45-day comment period. The Corps will publish details of how to access the EIS where the public meeting will be held and how to provide comments. We will also need to apply for Rhode Island approvals, specifically a Water Quality Certification and Coastal Zone Management Consistency Concurrence to perform the dredging and disposal. Should we not determine something new in the period between the publication of the EIS and the permit issue, I will be able to sign a Record of Decision. We are optimistic, that with your support and the continued support of all stakeholders, that we will be able to begin maintaining the channel in the fall of 2002 and deliver a safe and effective channel by the summer of 2004.



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## Corps signs EIS record of decision on Providence River

The US Army Corps of Engineers, New England District has signed the Record of Decision in compliance with the National Environmental Policy Act pertaining to the Final Environmental Impact Statement (FEIS) for the Providence River and Harbor Maintenance Dredging Project in Providence, Rhode Island.

"The Record of Decision states the US Army Corps of Engineers intention to dredge the Federal channel, the methods and locations of the Federal dredging, and the methods and locations of dredged material disposal," said District Engineer Colonel Brian Osterndorf, of the New England District. "This plan provides the best solution for meeting the immediate maintenance needs of the harbor while providing prudent safeguards for the environment."

"We intend to dredge the navigation channel to 40ft deep and 600ft wide to restore the full congressionally authorized project dimensions," O'Donnell said. "We will not dredge the segment at the upstream end of the project and the section along the East Providence shoreline near Watchemocket Cove as identified in the FEIS."

Maintenance dredging will be performed using an enclosed clamshell bucket dredge and no overflow of the scow will be allowed while it is being filled.

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